

Chaetodipus lineatus.

By Troy L. Best

Published 15 November 1993 by The American Society of Mammalogists

Chaetodipus Merriam, 1889

Chaetodipus Merriam, 1889:5. Type species *Perognathus spinatus* Merriam, 1889, by original designation. Subgenus elevated to generic level (Hafner and Hafner, 1983:24).

CONTEXT AND CONTENT. Order Rodentia, Suborder Sciurognathi, Superfamily Geomyoidea, Family Heteromyidae, Subfamily Perognathinae, Genus *Chaetodipus*. The genus *Chaetodipus* is distinguished as follows: sole of hind foot naked; pelage relatively coarse, often with stiff, spine-like bristles on rump; stiff, coarse hairs usually project across anterior margin of ear pinna; antitragus of ear pinna lobed; mastoid bulla usually not projecting posteriorly beyond plane of occiput; posteromedial border of mastoid bulla usually projecting as a distinct indentation into the supraoccipital; interparietal width equal to or greater than interorbital breadth (Williams et al., 1993). There are 14 species of *Chaetodipus* represented by two subgenera. A key to the species and subgenera follows (modified from Williams et al., 1993):

- 1 Tail without distal crest and tuft of long hairs at tip; length of tail usually less than length of head and body *C. (Burtognathus) hispidus*
- Tail with distal crest and long tuft of hairs at tip; length of tail averaging greater than length of head and body *Chaetodipus (Chaetodipus)* 2
- 2 Rump with mix of long, stiff, bristly hairs or spines and normal hairs 9
- Rump without stiff bristles or spines in pelage 3
- 3 Posterior end of mastoid bullae projecting slightly beyond the posterior plane of the occipitals 4
- Posterior end of mastoid bullae anterior to or about level with posterior plane of occipitals 5
- 4 Size moderate, length of head and body generally <90 mm; length of hind foot usually <26 mm; width of interparietals averaging ≤5.9 mm, rarely ranging to 6.5 mm *C. formosus*
- Size large, length of head and body generally ≥90 mm; length of hind foot usually ≥26 mm; width of interparietals averaging ≥6.1 mm *C. baileyi*
- 5 Ear pinna large and rounded, length from notch usually ≥10 mm *C. artus*
- Ear pinna short to moderate size, length from notch usually <10 mm 6
- 6 Tail thinly haired and with small crest; occurring along the coastal lowlands of western Mexico, from southern Sonora to northern Nayarit; in southern part of range, broad lateral stripe of buffy or yellowish contrasting with brownish-appearing dorsal parts; in northern Sinaloa and southern Sonora, lateral stripe narrow or faint *C. pernix*
- Tail with moderate to large crest; not occurring south of southern Sonora along the Pacific coast of mainland Mexico; lateral stripe on sides between fore and hind limbs faint or absent 7
- 7 Dorsal color dull gray with buffy wash (no blackish overwash); buffy lateral stripe narrow, but distinct; occurring only on the Mexican Plateau in San Luis Potosí and eastern Zacatecas *C. lineatus*
- Dorsal color some shade of brownish or yellowish-gray with faint to strong overwash or admixture of blackish 8
- 8 Occurring only on the Baja California peninsula from San Felipe southward; tail faintly annulated in fresh specimens and slightly longer than length of head and body; interorbital breadth averaging >25.8% of occipitonasal length, except for some insular populations *C. arenarius*
- In Baja California, only occurring on the plains of the Gulf of California in the northeastern corner, from San Felipe

northward; elsewhere ranging widely in the creosotebush (*Larrea*) deserts of the United States and Mexico; tail annulated, and considerably longer than length of head and body; interorbital breadth averaging <25% of occipitonasal length in most populations, including those in Baja California *C. penicillatus*

- 9 Ear pinna long, usually measuring >9 mm 13
- Ear pinna short, usually measuring <9 mm 10
- 10 Occurring only west of the Colorado River in southern Nevada, California, or the Baja California peninsula 11
- Not occurring west of the Colorado River in southern Nevada, California, or the Baja California peninsula 12
- 11 Broad lateral stripe of buffy (yellowish with strong orange tone) contrasting with brownish-appearing upperparts,



FIG. 1. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Chaetodipus lineatus* from near Tapeyea, 1,020 m, San Luis Potosí (male, University of Kansas Museum of Natural History 39932). Greatest length of cranium is 25.0 mm. Photographs by T. H. Henry.

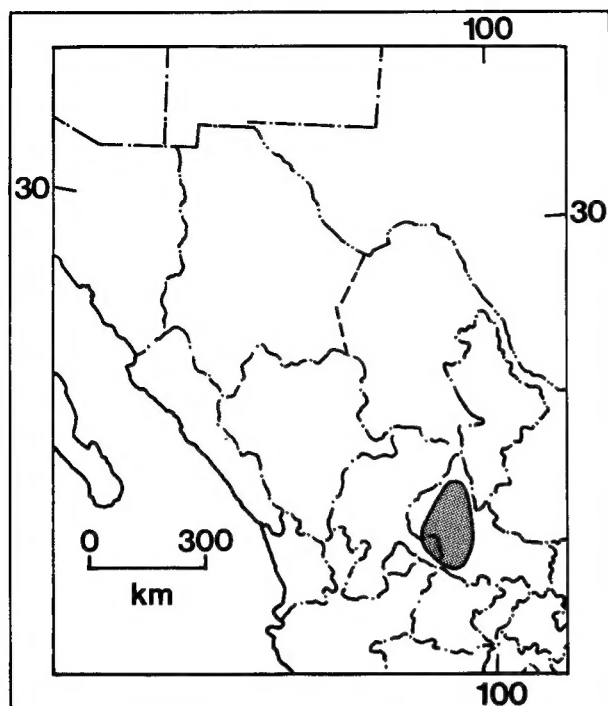


FIG. 2. Distribution of *Chaetodipus lineatus* in Mexico (Hall, 1981).

which shade to more blackish on the rump; skull relatively arched dorsally *C. fallax*
 Narrow lateral stripe that is pale yellowish-gray, or obsolete; upperparts brownish to pale buffy yellow, not shading to more blackish on rump; skull relatively flattened dorsally *C. spinatus*

- 12 Length of head and body averages ca. 77–80 mm; tail heavily crested and pelage of upperparts relatively coarse or harsh; spines on rump usually moderate in number and easily detected; in western Texas and Chihuahua, dorsal wing of premaxilla extending distinctly beyond posterior tip of nasal *C. nelsoni*
 Length of head and body averaging ca. 70–75 mm; tail moderately crested and pelage of upperparts not markedly coarse; spines on rump often sparse and difficult to detect; in western Texas and Chihuahua, dorsal wing of premaxilla terminating only slightly beyond posterior tip of nasal *C. intermedius*
- 13 Occurring only west of the Colorado River in California and Baja California 14
 Occurring only on the Pacific slopes and plains of the coastal mainland of Mexico 15
- 14 A few, weakly developed bristles on rump; length of ear usually <10 mm; occurs in Baja California from San Felipe southward *C. arenarius*
 Strong spines on rump; length of ear usually ≥ 10 mm; occurs in California and the central highlands of northern Baja California *C. californicus*
- 15 Dorsal wing of premaxilla extending distinctly beyond posterior tip of nasal; length of mastoid bullae averaging <6.0 mm *C. artus*
 Dorsal wing of premaxilla terminating at about even with posterior end of nasal; length of mastoid bullae averaging >6.5 mm *C. goldmani*

Chaetodipus lineatus (Dalquest, 1951)

Lined Pocket Mouse

Perognathus lineatus Dalquest, 1951:362. Type locality "1 km south of Arriaga, San Luis Potosí, México."

CONTEXT AND CONTENT. Context noted in generic summary above. *C. lineatus* is monotypic (Hall, 1981).

DIAGNOSIS. *Chaetodipus lineatus* differs from *C. nelsoni* in lacking long, stiff spines in the pelage of the rump area. It resembles *C. nelsoni* in size, proportions, and cranial characters (Fig. 1). Among the species of pocket mice that lack spines in the rump area, *C. lineatus* most closely resembles *C. penicillatus*, but differs from at least the geographically adjacent races of that species in its distinctive coloration, larger size, and larger, broader skull (Dalquest, 1951; Matson and Baker, 1986).

GENERAL CHARACTERS. *Chaetodipus lineatus* is small-sized for the genus (Best, 1993). It is a slim pocket mouse, with a crested tail that is longer than its head and body, and it lacks the long, stiff spines in the pelage of the rump area. The color of upperparts is dull gray, finely but distinctly lined with buffy, especially on the head. The general appearance of the upperparts is near pale drab to drab gray. The sides are grayer, and the underparts are white, separated from the gray of the sides by a faint indistinct line of pale buffy. The tail is dusky above and white beneath (Dalquest, 1951).

Average measurements (in mm) of 16 adult males and 10 adult females, respectively are: total length, 168.9, 163.2; length of body, 74.4, 73.0; length of tail, 94.5, 90.2; length of hind foot, 23.3, 22.3; length of ear, 7.4, 7.5; basal length of cranium, 15.5, 14.8; greatest length of cranium, 25.0, 24.3; maxillary arch spread, 11.7, 11.2; interorbital width, 6.2, 6.2; nasal length, 9.7, 9.3; intermaxillary width, 4.6, 4.6; alveolar length, 3.7, 3.7; lacrimal length, 1.7, 1.7; maxillary arch width, 1.3, 1.3; basioccipital length, 3.8, 3.7; greatest depth of cranium, 8.3, 8.2; greatest width of cranium, 13.0, 12.7; zygomatic width, 12.9, 12.4; and nasal width, 2.7, 2.6. Males are significantly larger than females in basal length of cranium, maxillary arch spread, nasal length, and zygomatic width (Best, 1993).

DISTRIBUTION. The lined pocket mouse occurs on the desert plains of San Luis Potosí and Zacatecas, and possibly in adjacent parts of Guanajuato and Jalisco (Fig. 2; Dalquest, 1951; Matson and Baker, 1986).

FOSSILS. The fossil history of Perognathinae extends back to the Miocene (Kurtén and Anderson, 1980). No fossils of *C. lineatus* are known. In addition, nothing is known regarding its physiology, ontogeny, reproduction, and genetic variation.

ECOLOGY. In San Luis Potosí, lined pocket mice occurred along rocky cutbanks and along old stone walls (Dalquest, 1953). *C. lineatus* is sympatric with *C. penicillatus* and *C. nelsoni* (Dalquest, 1951, 1953). However, *C. lineatus* is less restricted to areas of soft soil than is *C. penicillatus* (Dalquest, 1953). No parasites have been reported from *C. lineatus* (Whitaker et al., 1993).

BEHAVIOR. The habits of *C. lineatus* are much like those of *C. nelsoni*. It is nocturnal, emerging from burrows at the bases of desert plants or crevices in rock cliffs or rock walls ca. 1 h after dark and rarely straying far from cover. Usually, it travels slowly, but when it crosses an open place, such as a road, it moves swiftly. Food consists of the seeds of desert plants. Near Arriaga, San Luis Potosí, it feeds on seeds of prickly pear cactus (*Opuntia*). The fruits may be opened and partially eaten, presumably by birds, and seeds falling to the ground are gathered by lined pocket mice. However, *C. lineatus* apparently does not feed on the red pulp of the cactus fruit (Dalquest, 1953).

REMARKS. Phenetic analyses of morphologic characters have placed *C. lineatus* closest to *C. spinatus* (Caire, 1976) or to *C. intermedius* and *C. nelsoni* (Best, 1993). The taxonomic status of *C. lineatus* has been questioned because of its great similarity to *C. nelsoni*, except for its color and lack of rump spines. However, variability in presence or absence of rump spines has been noted for a number of species of *Chaetodipus*, including those typically having spines, and normally spineless species. Further, there is no definite distinction between the normal, coarse, troughed overhairs, weak bristles, and stiffer spines among species of *Chaetodipus*. Possibly, *C. lineatus* represents individuals of *C. nelsoni* without spines; that they are dull gray rather than dark brownish suggests that a simple mutation or age is responsible for the differences (Williams et al., 1993).

Chaetodipus is from the Greek *chaeta* referring to bristle-like hairs, *di* meaning two, and *podos* alluding to feet. The specific epithet *lineatus* is derived from the Latin *lineatus* meaning streaked or marked with lines (Jaeger, 1955).

F. S. Dobson, R. E. Martin, J. O. Matson, and D. F. Williams critically evaluated an early draft of the manuscript. This is journal article no. 15-923265 of the Alabama Agricultural Experiment Station.

LITERATURE CITED

- BEST, T. L. 1993. Patterns of morphologic and morphometric variation in heteromyid rodents. Pp. 197-235, in *Biology of the Heteromyidae* (H. H. Genoways and J. H. Brown, eds.). Special Publication, The American Society of Mammalogists, 10:1-719.
- CAIRE, W. 1976. Phenetic relationships of pocket mice in the subgenus *Chaetodipus* (Rodentia: Heteromyidae). *Journal of Mammalogy*, 57:375-378.
- DALQUEST, W. W. 1951. Six new mammals from the state of San Luis Potosí, Mexico. *Journal of the Washington Academy of Sciences*, 41:361-364.
- . 1953. *Mammals of the Mexican state of San Luis Potosí*. Louisiana State University Press, Baton Rouge, 229 pp.
- HAFNER, J. C., AND M. S. HAFNER. 1983. Evolutionary relationships of heteromyid rodents. *Great Basin Naturalist Memoirs*, 7:3-29.
- HALL, E. R. 1981. *The mammals of North America*. Second ed. John Wiley & Sons, New York, 1:1-600 + 90.
- JAECER, E. C. 1955. *A source-book of biological names and terms*. Third ed. Charles C Thomas Publisher, Springfield, Illinois, 323 pp.
- KURTÉN, B., AND E. ANDERSON. 1980. *Pleistocene mammals of North America*. Columbia University Press, New York, 442 pp.
- MATSON, J. O., AND R. H. BAKER. 1986. *Mammals of Zacatecas*. Special Publications, The Museum, Texas Tech University, 24: 1-88.
- MERRIAM, C. H. 1889. Preliminary revision of the North American pocket mice (genera *Perognathus* et *Cricetodipus* auct.) with descriptions of new species and subspecies and a key to the known forms. *North American Fauna*, 1:1-36.
- WHITAKER, J. O., JR., R. E. LEWIS, AND W. J. WRENN. 1993. Parasites. Pp. 386-478, in *Biology of the Heteromyidae* (H. H. Genoways and J. H. Brown, eds.). Special Publication, The American Society of Mammalogists, 10:1-719.
- WILLIAMS, D. F., H. H. GENOWAYS, AND J. K. BRAUN. 1993. Taxonomy. Pp. 38-196, in *Biology of the Heteromyidae* (H. H. Genoways and J. H. Brown, eds.). Special Publication, The American Society of Mammalogists, 10:1-719.

Editors of this account were J. ALDEN LACKEY and KARL F. KOOPMAN. Managing editor was JOSEPH F. MERRITT.

T. L. BEST, DEPARTMENT OF ZOOLOGY AND WILDLIFE SCIENCE AND ALABAMA AGRICULTURAL EXPERIMENT STATION, 331 FUNCHESS HALL, AUBURN UNIVERSITY, ALABAMA 36849-5414.